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# Current Case

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COPYRIGHT PROTECTION FOR COMPUTER PROGRAMS EXTENDS BEYOND LITERAL DUPLICATION TO STRUCTURE, SEQUENCE, AND ORGANIZATION. *Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.*, 797 F.2d 1222 (3d Cir. 1986), *aff'g* 609 F. Supp. 1307 (E.D. Pa. 1985).

The Third Circuit Court of Appeals, in a landmark ruling, has further extended the copyright protection of computer programs by holding that infringement may be found without literal duplication. Although non-literal copying has supported findings of infringement in cases dealing with other subject matter, this is the first time that copyright infringement of computer programs has been established without evidence of literal copying.

*Whelan Associates, Inc. v. Jaslow Dental Laboratory, Inc.* arose out of a dispute between an independent software contractor and a customer over the ownership of a commissioned computer program. Jaslow Dental Laboratory, Inc., a medium-sized dental laboratory operated principally by Rand Jaslow, produced and distributed materials and devices used in the practice of dentistry. In 1978, after his initial attempts to create a computer program to simplify inventory, marketing, and bookkeeping tasks failed due to his lack of expertise, Rand Jaslow turned to Strohl Systems Group to design a custom-made program for the business. The software development agreement stated that Elaine Whelan (an experienced programmer and half owner of Strohl Systems) would be the primary developer of a dental laboratory software system to be used on an IBM-Series 1 computer, with Strohl Systems retaining ownership of all software and marketing rights while Jaslow Laboratory was entitled to a 10% royalty on each program sold but with no rights in any subsequent modifications of the program. Jaslow Laboratory, as the pilot program, agreed to make its computer available for demonstrations.

With Rand Jaslow providing information on business aspects relating to the system, Elaine Whelan designed a dental laboratory program written in EDL (the Event Driven Language for computer

programming) by March 1979. She also designed other related programs, including a version of the Dentalab system for the IBM PC computer which was more commercially promising due to the popularity and affordability of the underlying computer.

Thereafter, Elaine Whelan left Strohl Systems in November of 1979 and formed Whelan Associates, Inc. to develop and market the Dentalab program. She was assigned all rights to the Dentalab program package from Strohl and filed copyright registrations on the Dentalab programs as literary works.[1]

A sales representative agreement was formed stating that Jaslow Laboratory would be Whelan Associates' sales representative due to Jaslow's superior buyer contacts. This agreement included non-exclusive rights to market, sell or lease the Dentalab program, and provided that Jaslow Laboratory would use its best efforts and receive 35% of the gross price for all new packages sold in addition to 5% of income from any modification sold and delivered. It was also agreed that Elaine Whelan reserved a final right of approval over all transactions and that all transactions would be in the name of Whelan Associates. Either party could terminate the agreement on thirty days notice after one year of operation providing all property of the other party was returned.

Subsequently, Rand Jaslow realized that a great deal of money could be made if the program could be rewritten in BASIC which would adapt the program to the IBM PC personal computers which many smaller dental labs were using. In his spare time, Rand Jaslow attempted to write such a program using the information he gained about the operation of the Dentalab system. He tried to duplicate the functions, screen formats, language, abbreviations, collating methods, file structure and work flow pattern of the IBM Series 1 Dentalab program. Although it was agreed that the source codes[2] to the Dentalab program were never to leave the possession of either Strohl or Whelan, Rand Jaslow surreptitiously misappropriated a copy of the source code and utilized it in his attempts to develop the IBM PC program. Frustrated again, Jaslow hired an expert programmer, Jonathan Novak, to build upon his work and finish the task. Novak quickly and successfully completed the Jaslow "Dentcom PC" program.

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1. Computer programs may be copyrighted as literary works or as audiovisual works. 17 U.S.C. § 102(a) (1982).

2. The "source code" is the set of computer instructions in a humanly readable format typically set in a computer language such as BASIC, PASCAL, C, FORTRAN, EDL, or COBOL. "Object code" is the translation of the source code into a virtually non-humanly readable binary number format that is designed to be readable by the computer.

During this time, indications appeared to Whelan that the two year old business relationship was souring. Finally, Whelan received a termination letter on January 31, 1983 claiming that Jaslow Laboratory was the sole and absolute owner of the Dentalab system, including exclusive marketing rights. Months later, Rand Jaslow and the other defendants formed Dentcom, Inc. to market dental laboratory software, including the Dentalab and Dentcom programs. Dentcom and Jaslow Laboratory marketed the IBM PC system, selling at least 23 licenses for a gross sales profit in excess of $100,000.00. In addition, after formal termination of the sales representation contract, Jaslow continued to advertise and sell Whelan's IBM-Series 1 Dentalab systems—obtained by direct copying of the system in use at Jaslow Laboratory—resulting in at least two sales for gross profits in excess of $42,000.00.

Prior to the formation of Dentcom, Jaslow Laboratory filed suit against Whelan Associates in Pennsylvania state court alleging trade secret misappropriation. Whelan Associates countered by filing a copyright infringement action in the United States District Court for the Eastern District of Pennsylvania.[3] Following the removal of Jaslow's original trade secret action to federal court for consolidation and Jaslow's unsuccessful motion for a preliminary injunction, the case proceeded to trial where the court considered and rejected the defenses interposed by Jaslow.

First, the court, unpersuaded by Rand Jaslow's co-authorship claim, held that where a businessman only provides routine information on business operations and specifies the data desired to a programmer, it is not a sufficient contribution to make the resulting program a "joint work" under 17 U.S.C. Section 101 where there is no evidence of intent to constitute a co-authored work.[4]

Second, the court rejected the contention that the the copyright belonged to Jaslow under the "work-for-hire" doctrine of 17 U.S.C. Sections 101 and 201 (b),[5] because the doctrine primarily applies to employees and its application to independent contractors (such as Whelan) was limited to very circumscribed situations[6] not found in the facts of the case. In the alternative, even if it were a work-for-hire, the court held that the contractual reservation of rights to Strohl Systems was effective to supersede statutory presumptions.

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3. 609 F. Supp. 1307 (E.D. Pa. 1985).
4. 17 U.S.C. § 101 (1982).
5. 17 U.S.C. §§ 101 and 201(b) (1982).
6. Primarily relating to compilations of other's works and educational works.

Third, regarding a claimed copyright violation resulting from defendant's post-termination agreement sale of the two IBM Series 1 programs copied from Jaslow Laboratory's own copy, the court held that while defendants owned the physical copy of the program, they did not own the copyright which they violated by making and selling unauthorized copies.

Fourth, the court rejected the contention that the Dentcom program was not a copy of the expression of the Dentalab program but merely a copy of the unprotectable idea behind it. The "expression of the idea" was broadly defined as "the manner in which the program operates, controls and regulates the computer in receiving, assembling, calculating, retaining, correlating, and producing useful information either on a screen, print-out or by audio communication.[7] It was held that the expression of a computer program may be copied without literal copying of source and object code where there is a copying of the method and manner in which the information flows from one function to the next. The mere fact that the source code of one program is written in one language while that of the putative copy is written in a different language does not preclude copyright infringement.

Jaslow's assertion that the IBM PC program was independently designed and not a copy or derivative of the IBM Series 1 program was evaluated by the traditional two prong test for copyright violation: access plus substantial similarity.[8] Access was established by Rand Jaslow's original familiarity with the program in addition to his misappropriation of the program's source code. The substantial similarity test[9] was applied to facts developed in trial through expert testimony. Plaintiff's expert testified that although the defendant's Dentacom system was not a straight translation into BASIC of the Dentalab program, the programs were sufficiently similar in three significant respects: (1) the file structures were similar, (2) the screen outputs of the programs were very similar,[10] and

7. 609 F. Supp. at 1320.

8. The access and substantial similarity requirements are excellently discussed and summarized in M. NIMMER, THE LAW OF COPYRIGHT § 13.03(A) (5th ed. 1979).

9. For a history and analysis of the application of the substantial similarity test to computer subject matter, *See* Note, "Computer Copyright Infringement," 3 SANTA CLARA COMPUTER & HIGH-TECH. L.J. No. 2 (1987) (forthcoming).

10. Since the decision of the Third Circuit in Whelan, the District Court for the Northern District of California has held that screen formats copyrighted as audiovisual works are protectable by copyright law even when they are not literally duplicated. *See* Broderbund, Inc. v. Unison World, Inc., No. C-85-3457 (N. D. Cal. Oct 8, 1986). The Broderbund court explicitly cited Whelan as authority for its holding. Broderbund is the very first of a series of ripples which can be expected from the splash created by the Whelan decision.

(3) five important subroutines within both programs (order entry, invoicing, accounts receivable, end-of-day procedure, and end-of-month procedure) performed almost identically in both programs. Defendant's expert compared the source and object codes of both programs and found substantial differences in programming style, structure, algorithms, and data structure concluding Dentacom was not derived from Dentalab.

After finding plaintiff's expert was better informed since he viewed the actual system in operation, the court concluded that Jaslow's IBM PC Dentcom program was an infringing copy of Whelan's IBM Series 1 Dentalab program, and awarded damages, an injunction, costs and attorneys' fees to the plaintiff.

Jaslow Laboratory appealed to the United States Court of Appeal for the Third Circuit[11] on two grounds attacking the District Court's finding of substantial similarity. First, that the trial court's finding of copyright infringement was without legal support since it was beyond the scope of copyright protection and, secondly, that the evidence before the trial court was insufficient to support the verdict. The Third Circuit turned back both of Jaslow's challenges and affirmed the District Court's interpretation of law and findings of facts. Since the former question of law is of the utmost significance to students of computer and copyright law and professionals in the software industry while the latter is merely a fact finding challenge, this casenote focuses on the issue of the scope of copyright law.

Jaslow's central argument on appeal was that the trial court's finding of substantial similarity was without legal effect because it concerned subject matter beyond the scope of copyright protection for computer programs. Jaslow contended that the scope of copyright protection for software did not extend beyond literal copying of elements of a program's source and object code because every prior case where infringement was found had evidence of literal duplication. Since the District Court found no literal copying, but only a similarity in overall program structures, it was asserted that the finding of copyright infringement was void and in error as beyond the scope of the protection of copyright law.

In addressing this argument, the court held that a program's

11. The Third Circuit is no stranger to landmark cases in the computer law arena. The Third Circuit decided Apple Computer Corp. v. Franklin Computers Inc., 714 F.2d 1240 (3d Cir. 1983) which was the first case to hold that computer operating systems are copyrightable subject matter and Williams v. Artic Electronics, Inc., 685 F.2d 870 (3d Cir. 1982) which was the first case to find copyright infringement of a computer program based upon the use of the substantial similarity test.

copyright covers not only the literal elements of the program but also the structure of the program itself, based on the following reasoning. The computer program at issue was copyrighted as a "literary work" under 17 U.S.C. Section 102(a)(1)[12] and courts have held that non-computer program literary works can be infringed without proof of literal copying. The earliest example of this is the classic substantial similarity case of *Nichols v. Universal Pictures*,[13] where Judge Learned Hand made his oft-quoted statement that "It is of course essential. . .that the [copy]right cannot be limited literally to the text, else a plagiarist would escape by immaterial variations." Later courts, following the lead of Judge Hand, have generally upheld findings of copyright infringement in non-computer subject areas where there is no literal copying.[14] The *Whelan* court could find no sound reason why computer programs should not be subject to the same rule.

Entering the murky waters of the idea/expression dichotomy, the court responded to the appellant's argument that the overall structure of the computer program was equivalent to the nonprotectable "idea" behind the program's "expression" by citing the purpose test from *Baker v. Selden*,[15] which held where the purpose behind the idea cannot be achieved by alternate structures, the structure merges with the idea and is nonprotectable. Applying this test, the court concluded that since the idea of a dental laboratory accounting and inventory program could be achieved by many structures, such programs would be protectable expressions.[16] Unfortunately, the complexity of the expression/idea dichotomy is not clarified by the court's reasoning at this point since it perpetuates the common pitfall in copyright analysis of failure to distinguish between the question of levels of abstraction differentiating idea from expression, on the one hand, and the general anti-monopoly

12. 17 U.S.C. § 107(a)(1) (1982).

13. 45 F.2d 119, 121 (2d Cir. 1930), *cert. denied*, 28 U.S. 902 (1931).

14. *See* Twentieth Century-Fox Film Corp. v. MCA, Inc., 715 F.2d 1327, 1329 (9th Cir. 1983) (copyright violation may be found on thirteen alleged plot similarities between Star Wars and Battlestar Galactica); Sid and Marty Krofft Television Productions, Inc. v. McDonald's Corp., 562 F.2d 115, 117 (9th Cir. 1977) (copyright violation can be based upon overall similarities in the "total concept and feel" between the total similarities between the H.R. Puffnstuff fantasy characters created by plaintiffs and the McDonaldland characters, quoting Roth Greeting Cards v. United Card Co., 429 F.2d 1106, 1110 (9th Cir. 1970)).

15. Selden was the first U.S. Supreme Court decision to address the idea/expression dichotomy in copyright law. 101 U.S. 99 (1879). *See also* Mazer v. Stein, 347 U.S. 217 (1954); Herbert Rosenthal Jewelry v. Kalapakian, 446 F.2d 738 (9th Cir. 1971). *Compare* Atari, Inc. v. North American Philips Consumer Electronics Corp., 672 F.2d 607, 616 (7th Cir. 1982).

16. 797 F.2d at 1238.

policy against giving copyright protection to a concrete expression where it is the only reasonable one possible for a given idea, on the other.[17] Because an idea is only capable of limited expression does not *ipso facto* transform such expression into an idea. A more correct limited expression analysis admits the expression has been copied, but reasons that the policy against awarding a monopoly on a particular idea with limited expressions prevents its protection by copyright law. Given the facts of this case, a stronger analysis on this point would have been provided by use of Judge Learned Hand's abstractions test to establish that the low level of abstraction at which structural similarities in the programs existed merited copyright protection as expressions.

Aside from complete literal copying, the late Professor Nimmer distinguished two types of substantial similarity which indicate copyright infringement: "fragmented literal similarity" and "comprehensive non-literal similarity."[18] Prior computer copyright cases have been limited to literal or "fragmented literal similarity" where portions have been literally copied and incorporated into the defendant's work.[19] This general approach of limiting copyright infringement to literal copying has been given the somewhat mystical moniker of the "iterative test."[20] Perhaps the most significant as-

17. An early, and unfortunately influential, example of this analytic confusion between the anti-competitive policy behind not allowing limited expressions to be copyrighted and judging whether the level of abstraction merits classification as an idea or an expression, appears in the opinion in Synercom Technology, Inc. v. University Computing Co., 462 F. Supp. 1003 (N.D. Tex. 1978). The analysis in Synercom has been uncritically adopted by some commentators and courts, including the court in the recent case of Plains Cotton Cooperative Association of Lubbock, Texas, v. Goodpasture Computer Service, Inc. (No. 86-1126, *slip. op.*, January 21, 1987) where the court declined to embrace the Whelan approach.

18. *See supra* note 15.

19. *See* Williams Electronics Inc. v. Artic International, Inc., 658 F.2d 870 (3d Cir. 1982), Midway Mfg. Co. v. Strohon, 546 F. Supp. 741 (N.D. Ill. 1983), and SAS Institute, Inc. v. S & H Computer Systems, Inc., 605 F. Supp. 816 (M.D. Tenn. 1985).

20. Note, 68 MINN. L. REV. 1264 (1984). Three principal arguments are advanced to support the limiting of computer copyright to literal copying. First, that the structure of computer programs is so different from other copyrighted subject matter in its higher degree of intricacy that non-literal copying is *per se* non-infringing because of the great time and effort involved. *Id.* at 1290. This argument erroneously assumes that time and effort in copying is a relevant factor in determining copyrightability. Second, that the structure of computer programs is inherently too vague to permit non-literal infringement as a matter of policy. Radcliffe, Recent Developments in Copyright Law Related to Computer Software, 4 COMPUTER L. REP. 189, 194-7 (1985). This contention fails to comprehend the fact that the copying of the structure of computer programs is a matter of degree and that non-literal copying of a program's structure may involve just as direct a misappropriation of the time, labor, and creativity of others as if the lines of code were literally copied. Third, that because the development of technological progress in programming is qualitatively different in involving the "stepping stone" use of the works of others, it would retard progress in the field to extend non-literal copyright protection to computer programs. 68 MINN. L. REV. at 1292.

pect of the *Whelan* decision is that it has officially extended the scope of computer copyright protection to include Professor Nimmer's "comprehensive non-literal similarity," and thus moved beyond the constraints of the limited "iterative test."[21]

The *Whelan* court has more particularly held that when a computer program is registered as a literary work, the following aspects are protected by copyright law against "comprehensive non-literal" copying. First, the general format of file structures is protectable. This appears to be a complete "about-face" from the early decision in *Synercom Technology, Inc. v. University Computing Co.*[22] where computer input formats were held non-copyrightable subject matter since they were like the non-copyrightable blank forms in *Selden.*[23] The *Synercom* case and the blank forms argument was distinguished by cases such as *Baldwin Cooke Co. v. Keith Clarke, Inc.*,[24] where blank forms were held copyrightable because their arrangement of information was innovative and because they conveyed information in themselves. The *Whelan* court held computer file structures protectable against non-literal copying to the degree that they are innovative in arrangement and convey information.

Second, the court held that screen output from a copyrighted computer program may be indirect evidence of probative value in determining infringement of the underlying computer program,[25] although such evidence alone would be insufficient to withstand summary judgment or directed verdict motions.

Third, the court held that it was not necessary to prove the

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This line of argument "begs the question" by assuming that non-literal copyright protection would stifle the legitimate use of others' programs in building block fashion to advance the field and then uses this very assumption as evidence to argue against the extension of copyright protection to non-literal elements. It assumes that non-literal "stepping stones" would necessarily be sufficiently similar to the original programs to be infringing, again using circular reasoning and "begging the question." *See supra* note 9.

Since the iterative test limits substantial similarity to literal copying, it is inadequate to deal with alteration as a means of avoiding copyright prosecution or to deal with translation from a program used on one model of computer to another or translation between different computer programming languages, as in the present case.

21. The court's reference to SAS Institute, Inc. v. S & H Computer Systems, Inc., 605 F. Supp. 816, as the "only other case where the court found that a program's copyright could extend beyond its literal elements to its structure and organization" is technically not fully accurate since the SAS court based its decision on an explicit finding of literal duplication of functional and non-functional bits of copied code. 797 F.2d at 1239.

22. 462 F. Supp. at 1012.

23. *See supra* note 15.

24. 383 F. Supp. 650 (N.D. Ill. 1974).

25. *Compare* Midway Mfg. Co. v. Artic Int'l., Inc., 547 F. Supp. 999 (E.D. Ill. 1982) where the audiovisual work was copyrighted but similarities in the underlying uncopyrighted program were considered by the court.

overall similarity of the entire programs to find copyright infringement, but that similarity of the overall structure, ordering, and process sequences of selected component program modules may be sufficient in itself for a finding of infringement without literal copying of source and object codes. Five subroutines[26] between the Dentalab and Dentcom programs were found to be non-literally substantially similar, however the programs were not compared in their entirety.[27]

Fourth, non-literal translations of a computer program from one computer language to another are now protectable. This, too, is a long overdue advance in computer copyright protection which is a logical extension of the seminal reasoning in *Apple v. Franklin*.[28]

These holdings of the *Whelan* court are progressive, far-reaching and constitute a significant change in the direction of copyright protection for computer programs which marks the opening-up a new frontier for copyright litigation. However, it is a frontier which may be fraught with the hidden dangers of the proverbial "double edged sword." It may cut one way to do justice to plaintiffs who are now enabled to protect their rights against artful copiers, but it may also cut in an unanticipated direction in the event that the same sword may be used by some competitors in the software marketplace as a weapon with which to harass and forestall competitors with similar products. As always, it is left to the wisdom of the courts to ascertain in each individual case whether copyright law is being used to rightfully protect a software developer's invention or being misused to drive legitimate competitors with independently developed products out of the marketplace. Since the vitality of our high-technology industry depends upon rewarding innovation with legal protection, the new direction in legal analysis begun by the *Whelan* decision will contribute greatly to furthering rapid progress in the computer field. The new frontier of computer copyright law has begun to expand beyond the constraints of the iterative test;

26. "Subroutines" are relatively independent portions of computer programs which perform designated tasks for the larger program such as performing calculations on past accounts to determine whether accounts payable are overdue or processing orders for products and deducting those orders from the inventory on hand.

27. Note that the Whelan trial court did not compare the entire computer programs at issue but based its holding on the non-literal copying of program components or modules. Thus there is, as yet, no court which has specifically held that the overall structure of an entire computer program—apart from points of similarity within its components—merits copyright protection. Using Nimmer's terminology, it might be said that what is actually involved in Whelan is not "comprehensive non-literal similarity" but fragmented or "componential non-literal similarity."

28. 714 F.2d at 1240.

future court decisions will define the limits of this new realm of copyright protection for computer programs.

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